
SPECIALIST REPORT – VEGETATION

DNRC/Miller Land Exchange Ravalli and Lewis & Clark Counties

Prepared for:

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
Southwestern Land Office
1401 27th Avenue
Missoula, MT 59801

Prepared by:

LAND & WATER CONSULTING, INC.
A DIVISION OF PBS&J
PO Box 239
Helena, MT 59624

September 2005

Project #: B12491

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Analysis Area Boundary	1
1.1.1 Lincoln Lands	1
1.1.2 Sula Lands	1
1.2. Analysis Methods.....	4
2.0 PRE-FIELD REVIEW	4
2.1 Threatened and Endangered Plant Species.....	4
2.1.1 Ute Ladies'-tresses	4
2.1.2 Water Howellia	4
2.1.3 Spalding's Champion	5
2.2 Sensitive Plant Species	5
3.0 FIELD REVIEW.....	5
3.1 Existing Conditions	5
3.1.1 Lincoln Lands.....	5
3.1.1.1 Vegetation Types and Land Use – Lincoln Lands	5
3.1.1.2 Weeds and Weed Control – Lincoln Lands	6
3.1.1.3 Grazing –Lincoln Lands	7
3.1.1.4 Wetlands and Riparian Habitats – Lincoln Lands	7
3.1.1.5 Threatened, Endangered and Sensitive Species – Lincoln Lands	7
3.1.2 Sula Lands	10
3.1.2.1 Vegetation Types and Land Use – Sula Lands.....	10
3.1.2.2 Grazing – Sula Lands	10
3.1.2.3 Weeds and Weed Control – Sula Lands	11
3.1.2.4 Wetlands and Riparian Habitat – Sula Lands	11
3.1.2.5 Threatened, Endangered and Sensitive Species – Sula Lands	11
4.0 ALTERNATIVES ANALYSIS.....	12
4.1 No Action Alternative	12
4.1.1. Direct and Indirect Effects	12
4.1.1.1 Lincoln Lands – General Effects	12
4.1.1.2 Sula Lands - General Effects.....	12
4.1.1.3 Impacts to Wetland and Riparian Habitats – Lincoln and Sula Lands	13
4.1.1.4 Impacts to Threatened and Endangered Plants – Lincoln and Sula Lands	13
4.1.1.5 Impacts to State-listed Rare Plants – Lincoln and Sula Lands.....	14
4.1.2 Cumulative Effects – Lincoln and Sula Lands	14
4.2 Proposed Action Alternative	14
4.2.1. Direct and Indirect Effects	14

4.2.1.1	Lincoln Lands – General Effects	14
4.2.1.2	Sula Lands - General Effects.....	15
4.2.1.3	Impacts to Wetland and Riparian Habitats – Lincoln and Sula Lands	16
4.2.1.4	Impacts to Threatened and Endangered Plants	16
4.2.1.5	Impacts to State-listed Rare Plants – Lincoln and Sula Lands	17
4.2.2	Cumulative Effects – Lincoln and Sula Lands	17
5.0	SUMMARY	17
6.0	SIGNATURE OF ENVIRONMENTAL PROFESSIONAL.....	19
7.0	REFERENCES.....	19

TABLES

Table 1 - *Plant Species Identified during the May 2005 site visits*

Table 2 - *Comparison of Alternatives A and B, Vegetation Resources*

FIGURES

Figure 1 - *Lincoln Lands Parcel Map*

Figure 2 - *Sula Lands Parcel Map*

VEGETATION SPECIALIST REPORT DNRC/MILLER EXCHANGE

1.0 INTRODUCTION

This specialist report evaluates vegetation on lands affected by the DNRC/Miller Land Exchange near Sula and Lincoln, Montana. This report is part of an Environmental Assessment (EA) being prepared in compliance with the Montana Environmental Policy Act (MEPA) for the Montana Department of Natural Resources and Conservation (DNRC).

The DNRC/Miller Land Exchange would trade state-owned land near Sula for privately-owned land near Lincoln. J.R. Miller Ranches, LLC owns the Shining Mountain Ranch (SMR) located in the French Basin near Sula and owns three parcels of land previously held by The Nature Conservancy (TNC) near Lincoln. Under the Proposed Action, the DNRC would transfer five land parcels that are adjacent to the SMR to private ownership. In exchange, the DNRC would acquire the three land parcels near Lincoln that are currently owned by J.R. Miller Ranches LLC.

1.1 Analysis Area Boundary

1.1.1 Lincoln Lands

The project area north of Lincoln, Montana consists of three land parcels located within portions of Sections 1, 2, 3, 9 and 12, T14N, R9W (**Figure 1**). The three parcels proposed for land exchange cover a total of approximately 1,458 acres: Parcel 1 is approximately 732 acres, Parcel 3 is approximately 224 acres, and Parcel 9 is approximately 502 acres. The three parcels are accessed by a network of private and state (DNRC) roads that spur from Sucker Creek Road, Beaver Creek Road, and North Lincoln Gulch Road, all of which all connect to Highway 200. J.R. Miller Ranches LLC recently acquired these parcels from TNC. Walk-in public access and snowmobiles have been allowed on all of the Lincoln Lands. Automobile and truck motorized public access has only been allowed on Parcel 1.

1.1.2 Sula Lands

The project area north of Sula, Montana consists of five parcels located within portions of Sections 15, 16, 21, and 22, T2N, R19W (**Figure 2**). The project area also includes three road easements located within portions of Sections 8, 9, and 27, T2N, R19W (**Figure 2**). The five parcels proposed for land exchange cover a total of approximately 800 acres: Parcel 1 is approximately 115 acres, Parcel 2 is approximately 176 acres, Parcel 3 is approximately 111 acres, Parcel 4 is approximately 237 acres, and Parcel 5 is approximately 161 acres. Currently, these parcels are under DNRC management as School Trust lands and surround the SMR property. All parcels are accessible from a private road across the SMR. Indirect access is also available via a network of DNRC state roads. Access to the parcels is by State and U.S. Forest Service Roads. The only public access on the Sula Lands has been by walking from nearby State and Federal roads.

Figure 1 goes here

Figure 2 goes here

1.2 Analysis Methods

Location information pertaining to endangered, threatened, and sensitive (TES) plant species in vicinity of the Sula and Lincoln Lands was obtained from the Montana Natural Heritage Program (MTNHP). The U.S. Fish and Wildlife Service (USFWS) statewide list by county, which depicts the distribution of listed, proposed, and Category 1 candidate threatened and endangered species in Montana, was reviewed.

National Wetland Inventory maps created by the USFWS in 1984 were examined for the presence of wetlands and deepwater habitats. Information regarding vegetation resources on the Lincoln Lands was also requested and received from The Nature Conservancy (TNC). Biologists from the Montana Department of Fish, Wildlife, and Parks (MFWP), U.S. Forest Service (USFS), and DNRC were consulted regarding vegetation resources in the project areas. Pertinent literature was also reviewed.

A site visit to the Lincoln Lands was conducted by Andrea Pipp, Biologist for Land & Water/PBS&J Consulting, on May 3, 2005. Ms. Pipp visited the proposed Sula Lands on May 5, 2005. These site visits consisted of reconnaissance inventories of wetlands, TES plants and animals, vegetation communities and habitats, and wildlife presence and sign (tracks, nests, and scat). In addition, general land use, landscape features, and presence/condition of waterways were noted.

2.0 PRE-FIELD REVIEW

2.1 Threatened and Endangered Plant Species

There are three threatened or proposed threatened plant species in Montana. Each of these plants is discussed below.

2.1.1 Ute Ladies'-tresses

Threatened. Ute ladies'-tresses (*Spiranthes diluvialis*) has been found in wetlands and swales connected with river meanders that occur in broad, open valleys, at margins with calcareous carbonate accumulation (MTNHP 2005b). Known locations occur in Beaver, Gallatin, Jefferson, and Madison counties (MTNHP 2005b).

2.1.2 Water Howellia

Threatened. Water howellia (*Howellia aquatilis*) is restricted in Montana to clusters of wetlands in the Swan Valley; it is found in small, vernal freshwater glacial ponds and oxbow sloughs that typically evaporate by fall (MTNHP 2005b). Known populations occur in Lake and Missoula counties (MTNHP 2005b).

2.1.3 Spalding's Campion

Proposed Threatened. Spalding campion's (*Silene spaldingii*) is found in open grasslands with rough fescue or bluebunch wheatgrass habitat associations (MTNHP 2005b). It is occasionally found with scattered conifers on deep soils in the valley and foothill zones. Known populations occur in Flathead, Lake, Lincoln, and Sanders Counties (MTNHP 2005b).

2.2 Sensitive Plant Species

The DNRC list for endangered, threatened, and sensitive species does not include plant species (DNRC 2003). Within a one-mile vicinity of the Lincoln Lands, the MTNHP database revealed no known rare plant locations (MTNHP 2005a). In addition, TNC has not identified any known or suspected rare plant locations in vicinity of the Lincoln Lands (Kloetzel 2005).

Within a one-mile vicinity of the Sula Lands, the MTNHP database revealed one known rare plant species, Lemhi beardtongue (*Penstemon lemhiensis*) (MTNHP 2005a). Lemhi beardtongue is regionally endemic to Lemhi County of Idaho and Beaverhead, Deer Lodge, Ravalli, and Silverbow Counties of Montana (MTNHP 2005b). In Montana there are at least 50 known populations, though most populations have less than 100 plants (MTNHP 2005b). The MTNHP has globally rated it as a G3 and in Montana as an S2 (MTNHP 2005a). Species ranked as a G3 are globally at potential risk because of a limited range, population, or habitat. Species ranked as an S2 are in Montana considered at risk because of very limited and potentially declining population numbers and/or habitat, making the plant vulnerable to extirpation in the state.

3.0 FIELD REVIEW

3.1 Existing Condition

3.1.1 Lincoln Lands

The Lincoln Lands were originally owned and managed by Champion International and later by the Plum Creek Timber Company (PCTC) (TNC 2004a). In 2004 TNC purchased these parcels and implemented stewardship activities (Kloetzel 2005). The Nature Conservancy then sold these parcels to J.R. Miller Ranches, LLC in May of 2005.

3.1.1.1 *Vegetation Types and Land Use – Lincoln Lands*

Of the approximate 1,458 acres proposed for land exchange, 65 acres are considered non-forest with the remaining acreage forested (DNRC 2005). The Lincoln Lands occur within the *Rattlesnake/Blackfoot/South Swan Mountains* ecological unit (Nesser et al. 1997). In this ecological unit, potential vegetation is western ponderosa forest and Douglas-fir forest. The mean annual precipitation ranges from 35 to 80 inches, with about 60 percent falling as snow. The predominate land use is timber harvest and recreation while the primary natural disturbance is fire.

These parcels were heavily logged in the 1980s by Champion International and since 1993 by PCTC using clear-cut and commercial thinning prescriptions (Tetra Tech 2003, TNC 2004a). Mature ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) were the predominant species removed. While the Lincoln Lands have been heavily logged, it is estimated that a residual volume of 1.5 to 2.0 million board feet (MBA) remain (DNRC 2005). It has also been estimated that within the next 20-30 years, the forest could be commercial thinned and harvested (DNRC 2005).

Overall, the forest land is generally well stocked with regenerating trees representing a diversity of age and size classes. Field observations found the Lincoln Lands to be better suited for timber production than for grazing. As trees regenerate, shading will continue to limit forage production. In more open areas, noxious and exotic weeds are out-competing forage producing plants (see Grazing section).

Upland understory vegetation appeared fairly consistent and dominant native species found were: Oregon grape (*Berberis repens*), elk sedge (*Carex geyeri*), northwestern sedge (*Carex concinnoides*), kinnick-kinnick (*Arctostaphylos uva-ursa*), snowberry (*Symphoricarpos albus*), yarrow (*Achillea millifolium*), pussy-toes (*Antennaria*), arnica (*Arnica*), ninebark (*Physocarpus malvaceus*), and rose (*Rosa*). Dominant stream and wetland vegetation consisted of: alder (*Alnus*), aster (*Aster*), carex (*Carex*), willow (*Salix*), cottonwood (*Populus balsamifera*), and aspen (*Populus tremuloides*). Although a complete plant inventory was not conducted, a list of plant species observed during the field survey was compiled (**Table 1**).

Parcel 1 grades from upland forest on steep slopes in the north to riparian and upland forest on gentle slopes in the south. Although harvested, Parcel 1 contains residual and regenerating lodgepole (*Pinus contorta*), Douglas-fir, and ponderosa pine trees. The lowlands are dotted with ephemeral drainages, wetlands, ponds, and are drained by the perennial waters of Liverpool and Park Creeks. About 7.3 miles of mostly open roads traverse this parcel (DNRC 1996). As with all the Lincoln Lands, many barricaded and spur roads are used heavily by off-road vehicles (mostly ATVs) (Kloetzel 2005).

Parcel 3 was commercially thinned and is predominantly regenerating with Douglas-fir mixed with lodgepole and ponderosa pines. Limited wetland habitat exists within Parcel 3. About 1.2 miles of gated roads bisect the parcel (DNRC 1996). Domestic sheep grazing occurs in Sections 1 and 12, while cattle grazing occurs in Sections 3 and 9 (TNC 2004a).

Parcel 4 is upland forest occupied mostly by regenerating lodgepole, mixed with ponderosa pine, Douglas-fir, and a little Engelmann spruce (*Picea engelmannii*). Along the eastern border and in the southwest corner (at the lower elevations), wetlands and aspen trees intermix with upland forest. About 6.7 miles of closed road traverse the entire parcel (DNRC 1996).

3.1.1.2 Weeds and Weed Control – Lincoln Lands

Weed surveys conducted by TNC documented three noxious species on the Lincoln parcels: hound's-tongue (*Cynoglossom officinale*), spotted knapweed (*Centaurea maculosa*), and St.

John's-wort (*Hypericum perforatum*) (TNC 2004b). Two other noxious species were found in limited areas nearby, but outside of these parcels: yellow toadflax (*Linaria vulgaris*) and leafy spurge (*Euphorbia esula*) (TNC 2004b). In addition, TNC found bull thistle (*Cirsium vulgare*), musk thistle (*Carduus nutans*), and mullein (*Verbascum thapsus*), which are invasive exotic species (TNC 2004b, Kloetzel 2005).

Weed populations throughout the Lincoln Lands are very apparent, especially along roadsides. In Parcels 1 and 3, weed infestations are often dense and of mixed species along roadsides and areas disturbed by off-road vehicles and timber harvesting.

Chemical control of weeds was implemented along roadsides (spot treatment) in 2004 by TNC and the local snowmobile club using a mixture of piclorum (Tordon) and 2,4-D (TNC 2004b). Some transline was also used (Kloetzel 2005). Chemical treatment of the leafy spurge patch was observed to be an effective control on the population (TNC 2004b). The stem mining weevil (*Mecinus janthinus*) was released to control yellow toadflax (Kloetzel 2005). Bio-control was also released to help control spotted knapweed (Kloetzel 2005).

3.1.1.3 *Grazing – Lincoln Lands*

Historically, all of the Lincoln Lands have been leased for grazing. Existing leases cover about 1,042 acres. In Parcel 1, portions of section 1 (160 acres) and section 12 (160 acres) have been under the Sieben Lease for sheep grazing (Kloetzel 2005). The remainder of Parcel 1 was leased for grazing in recent years, but is currently not active (Kloetzel 2005). All of Parcel 3 and Parcel 4 have been under the Fleming Lease for cattle grazing (Kloetzel 2005).

3.1.1.4 *Wetlands and Riparian Habitats – Lincoln Lands*

In the vicinity of the Lincoln Lands, wetlands, riparian corridors, and deepwater habitats are abundant. Many wetlands and riparian corridors and one small lake occur within the lowlands of Parcel 1. Liverpool and Park Creeks and their perennial and intermittent tributaries bisect Parcel 1. Wetlands within Parcel 1 are primarily classified as palustrine with emergent vegetation, though in some areas scrub-shrub and aquatic bed vegetation types exists (USFWS 1984). One small lake (deep water habitat) supports an abundance of waterfowl during the spring to fall. In contrast, Parcels 3 and 4 contain only a few small perennial drainages with associated wetlands (unmapped by USFWS) and a few intermittent/ephemeral drainages. Especially in Montana, wetlands, riparian corridors, and deep water habitats are ecologically valuable and harbor high biological diversity.

3.1.1.5 *Threatened, Endangered and Sensitive Species – Lincoln Lands*

In vicinity of the Lincoln Lands, the MTNHP database revealed no known occurrences of threatened, endangered, or sensitive (TES) plants (MTNHP 2005a). In addition, TNC has not identified any known or suspected TES plant locations in vicinity of the Lincoln Lands (Kloetzel 2005).

Habitat for Spalding's campion is not present on the Lincoln Lands. Although water howellia and Ute-ladies' tresses are associated with wetlands, occurrence of these plants on the Lincoln Lands is probably unlikely due to geography and/or habitat (see **Section 2.1** of this document). None of these plants would have been identifiable during the May field visit, which was not intended to serve as a rare plant survey.

Table 1 *Plant Species Identified during the May 2005 site visits*

Plant Type	Scientific Name	Common Name	Observed on Lincoln Lands?	Observed on Sula Lands?
Trees	<i>Abies lasiocarpa</i>	sub-alpine fir	Yes	
	<i>Picea engelmannii</i>	Engelman spruce	Yes	
	<i>Pinus contorta</i>	lodgepole pine	Yes	Yes
	<i>Pinus ponderosa</i>	ponderosa pine	Yes	Yes
	<i>Populus balsamifera</i>	cottonwood	Yes	
	<i>Populus tremuloides</i>	aspen	Yes	
	<i>Pseudotsuga menziesii</i>	Douglas-Fir	Yes	Yes
Shrubs	<i>Alnus</i> spp.	alder	Yes	
	<i>Arctostaphylos uva-ursi</i>	kinnikinnick	Yes	Yes
	<i>Artemisia tridentata</i>	big sagebrush	Yes	Yes
	<i>Berberis repens</i>	creeping Oregon grape	Yes	Yes
	<i>Ceanothus velutinous</i>	shiny buckbrush	Yes	
	<i>Juniperus communis</i>	common juniper	Yes	Yes
	<i>Physocarpus malvaceus</i>	Ninebark	Yes	Yes
	<i>Rosa</i> spp.	Rose	Yes	Yes
	<i>Symphoricarpos albus</i>	common snowberry	Yes	Yes
Grasses / Sedges	<i>Salix</i> spp.	willow	Yes	
	<i>Agropyron cristatum</i>	crested wheatgrass	Yes	
	<i>Agropyron</i> spp.	Wheatgrass	Yes	Yes
	<i>Bromus inermis</i>	smooth brome	Yes	Yes
	<i>Bromus tectorum</i> ²	Cheatgrass	Yes	Yes
	<i>Calamagrostis rubescens</i>	pine grass	Yes	Yes
	<i>Carex concinnoides</i>	northwestern sedge	Yes	
	<i>Carex geyeri</i>	elk sedge	Yes	Yes
	<i>Carex</i> spp.	Sedge	Yes	
	<i>Festuca idahoensis</i>	Idaho fescue		Yes
	<i>Festuca (rubra)</i>	rough fescue		Yes
	<i>Festuca</i> spp.	Fescue	Yes	Yes
	<i>Juncus</i> spp.	Rush	Yes	
	<i>Phleum pretense</i>	Timothy	Yes	Yes
	<i>Poa</i> spp.	Bluegrass	Yes	Yes
Forbs	<i>Typha latifolia</i>	Cattail	Yes	
	<i>Achillea millefolium</i>	western yarrow	Yes	Yes
	<i>Antennaria racemosa</i>	pussytoes	Yes	Yes
	<i>Arnica</i> spp.	arnica	Yes	Yes
	<i>Aster</i> spp.	aster	Yes	Yes
	<i>Besseyia rubra</i>	red besseyia		Yes
	Brassicaceae	Mustard Family	Yes	Yes
	<i>Centaurea maculosa</i> ¹	spotted knapweed	Yes	Yes
	<i>Carduus nudum</i> ²	musk thistle	Yes	
	<i>Collinsia parviflora</i>	blue-eyed Mary	Yes	
	<i>Cirsium vulgare</i> ²	bull thistle	Yes	
	<i>Cynoglossum officinale</i> ¹	hound's-tongue	Yes	Yes
	<i>Dodecatheon</i> spp.	shooting-star		Yes
	<i>Fragaria vesca</i>	strawberry	Yes	Yes
	<i>Fritillaria pudica</i>	yellow fritillary		Yes
	<i>Geum triflorum</i>	prairie smoke		Yes
	<i>Heuchera cylindrical</i>	roundleaf alumroot		Yes
	<i>Hypericum perforatum</i> ¹	St. John's-wort	Yes	
	<i>Lupinus</i> spp.	lupine		Yes
	<i>Mertensia</i> spp.	bluebells		Yes
	<i>Potentilla (arguta)</i>	(tall) cinquefoil		Yes
	<i>Potentilla (gracilis)</i>	(slender) cinquefoil		Yes
	<i>Ranunculus</i> spp.	buttercup	Yes	Yes
	<i>Rumex</i> spp.	Dock	Yes	
	<i>Senecio</i> spp.	Groundsel	Yes	
	<i>Taraxacum officinale</i>	Dandelion	Yes	Yes
	<i>Trifolium</i> spp.	Clover	Yes	Yes
	<i>Verbascum thapsus</i> ²	Mullein	Yes	Yes
	<i>Viola (adunca)</i>	(hook) violet		Yes

¹ Noxious plant as designated by the State of Montana.² Exotic plant for which TNC has implemented control.

3.1.2 Sula Lands

3.1.2.1 *Vegetation Types and Land Use – Sula Lands*

The Sula Lands are under DNRC management as School Trust Lands as part of the Sula State Forest (DNRC 2005). Of the approximate 800 acres proposed for land exchange, approximately 300 acres are classified as an *Intermountain Valley Grassland & Meadow* vegetation type while the remaining acres are classified as *Western Montana Ponderosa Pine Forest* vegetation type (Payne 1973, DNRC 2005). The Sula Lands occur within the *South Anaconda/Bitterroot Mountains* ecological unit (Nesser et al. 1997). In this ecological unit: a) mean annual precipitation ranges from 16 to 55 inches with about 60% falling as snow, b) potential vegetation is Douglas-fir forest and western spruce-fir forest, c) the predominate land use is timber harvest, grazing, and some mining, and d) the primary natural disturbance is fire.

Prior to the fires of summer 2000, the forested portion of the Sula Lands was dominated by widely spaced, mature ponderosa pine, with an understory of mostly mixed grasses and forbs. During the summer of 2000, these Sula Lands burned as part of a larger fire complex (DNRC 2005). The five Sula Lands are very similar in vegetation type and structure, differing mainly in burn intensity. Burn intensity on Parcels 1-3 was greater than Parcels 4 and 5, with fewer green trees surviving. Burn intensity on Parcels 4 and 5 was patchy with many green trees surviving. Selected salvage logging by DNRC occurred between 2002 and 2004, particularly on Parcels 1-3 (DNRC 2005).

Field observations found the Sula Lands to be productive sites. Timber value prior to the fires appeared strong, based on standing tree diameter and height. The summer 2000 fires killed many of the trees, causing a decrease in timber value, but an increase in post-fire biological diversity. The understory is dominated by native grasses, mixed with a variety of native forbs. Although a complete rangeland assessment was not completed, the parcels appeared to support healthy and productive grasslands. A list of plant species observed during the field survey is provided in **Table 1**.

3.1.2.2 *Grazing – Sula Lands*

Grazing leases on the Sula Lands have been deferred as a result of the 2000 fires and subsequent tree planting (Storer 2005). Grazing leases have been held by J.D. Miller of SMR (680 acres) and another lease-holder (120 acres). The DNRC School Trust Lands near Sula have generated approximately \$805 per year in revenues, which equates to a little over \$1.00 per acre.

The SMR implements on their property a rest-rotation grazing plan in which a portion of their land is rested from grazing for 2-2.5 years (Meyer 2005). Grazing intensity is monitored and modified with the use of electric fences and a dispersed watering system which is designed to prevent livestock from congregating in creek bottoms. In 2004, approximately 320 yearlings grazed on approximately 6,000 acres between late spring and early fall (Meyer 2005).

3.1.2.3 *Weeds and Weed Control – Sula Lands*

In recent years and because of salvage logging, the DNRC has been responsible for roadside spraying to control weeds (Storer 2005). Prior to the 2000 fires, it was the grazing leaseholder's responsibility to control weeds (Storer 2005).

On the SMR property, which is mostly surrounded by the Sula State Forest, a weed control program was implemented five years ago on about 5,000 acres of private, Forest Service, and State lands (Meyer 2005). Because weed control is working, less chemical spraying occurs each year (Meyer 2005). In 2004, about 487 acres of state land was chemically treated (Meyer 2005). No bio-control has been implemented on the state or private lands (Meyer 2005).

During the May field visit, two noxious weed species were found on the Sula Lands: spotted knapweed and hound's-tongue. Spotted knapweed was found present in the forest understory, but in low abundance. Clumps of hound's-tongue were found widely scattered throughout the parcels. In addition, two exotic, invasive species were found: common mullein and cheatgrass (*Bromus tectorum*). Mullein was found scattered throughout the parcels. Cheatgrass was found growing in small, but dense patches where very hot portions of the fire had burned the soil. The DNRC roadsides, and especially the SMR roadsides, were mostly devoid of noxious weeds during the May visit. Overall the understory was dominated by native forbs and grasses on the Sula Lands during the May visit.

3.1.2.4 *Wetland and Riparian Habitat – Sula Lands*

Within the Sula Lands, wetland habitat is limited to a wetland fringe along Cameron and Lyman Creeks and their tributaries. Schoolmarm Lake is the only deep water habitat in the vicinity of the project; it occurs on the SMR property, immediately adjacent to Parcel 5. The lake supports an abundance of waterfowl (including a transitory loon [Vore 2005]) from spring to fall.

3.1.2.5 *Threatened, Endangered and Sensitive Species - Sula Lands*

No known occurrences of Montana's three threatened or proposed threatened plants occur in vicinity of the Sula Lands (MTNHP 2005a). Habitat for these three federally-listed plants is not present on Sula Lands.

The MTNHP database revealed one rare plant species in the vicinity of the Sula Lands (MTNHP 2005a). Lemhi penstemon is rated globally as a G3 and state-wide as an S2. Four sub-populations of Lemhi penstemon occur on US Forest Service (USFS) managed land in Sections 27 and 28, just south of the SMR property. Lemhi penstemon occupies moderate to steep, east to southwest-facing slopes, usually on open slopes (MTNHP 2005b). Fire suppression and spotted knapweed invasion are primary threats to the persistence of Lemhi penstemon populations (MTNHP 2005b).

During the May site visit, one of these sub-populations (on USFS managed land) was tentatively located as evidenced by last year's flowering stalk and some basal leaves. However, definitive characteristics of this plant are not readily apparent until June and July. Surveys for Lemhi

penstemon have not occurred on the Sula State Forest (Storer, McGrath, and Vore 2005). Some potential for occurrence on the Sula Lands may exist, especially as a result of the 2000 fires.

4.0 ALTERNATIVES ANALYSIS

4.1 No Action Alternative

4.1.1 Direct and Indirect Effects

4.1.1.1 *Lincoln Lands – General Effects*

Alternative A. No Action Alternative - Under the No Action Alternative, the State of Montana would not exchange State lands located in Sections 15, 16, and 21 of T2N, R19W in Ravalli County for private lands located in Sections 1, 2, 3, 9, and 12 of T14N, R9W in Lewis and Clark County.

Under the No Action Alternative, the Lincoln Lands currently owned by J.R. Miller Ranches, LLC, would be sold back to TNC. The Nature Conservancy would sell the land to private landowners but place a conservation easement on the parcels. A limited number of homes could be built (Sommer 2005). Public access would likely be eliminated as a result of the sale to private parties. Grazing opportunities would be limited to private landowners. Road density, which is already high in many of the parcels, could increase with home development. Road decommissioning or restoration would be unlikely under private ownership.

Under private ownership, any development of the land could fragment habitats and decrease native plant diversity. However, the extent of land development would depend upon the private landowners and would be limited by a conservation easement. Weed control would most likely occur in a more patchwork pattern (as opposed to a comprehensive, all inclusive weed control plan) as it would be the responsibility of several different landowners to control weeds. Therefore, it would be anticipated that noxious weeds in certain portions of the Lincoln parcels would be controlled while in other portions noxious weeds would continue to increase as a result of little to no control efforts.

4.1.1.2 *Sula Lands – General Effects*

Alternative A. No Action Alternative - Under the No Action Alternative, the State of Montana would not exchange State lands located in Sections 15, 16, and 21 of T2N, R19W in Ravalli County for private lands located in Sections 1, 2, 3, 9, and 12 of T14N, R9W in Lewis and Clark County.

Under the No Action Alternative, the Sula Lands would remain under the ownership of the Montana DNRC. These 800 acres would remain as State Trust Land within the Sula State Forest. Management activities typical for the DNRC State Trust Lands would continue.

The DNRC has managed two livestock grazing permits on the Sula Lands. J.R. Miller leases about 680 acres while another private leaseholder has about 120 acres. Because of the 2000 fires and subsequent tree planting, these grazing leases have been deferred, but would most likely be reinstated in the future.

The 2000 fires and subsequent salvage in Parcels 1-3 during 2002 to 2004 will limit future timber harvest on these parcels in the near future. Further timber harvest on Parcels 1-3 would not be anticipated to occur for at least 40 years (DNRC 2005). DNRC may conduct salvage timber harvest on dead and dying trees within Parcels 4 and 5 (Storer 2005). In all parcels, some commercial thinning may be possible in 40-60 years from the present (DNRC 2005).

The DNRC would continue to monitor survival and growth of planted tree seedlings and natural regeneration on the Sula Lands (Storer 2005). Additional tree planting on up to 100 acres where natural regeneration is lacking would most likely be done by the DNRC within Parcels 1-3.

Under the No Action Alternative road Easements 1 – 3 would not be acquired. Any future road use or improvements by DNRC on Miller property would require landowner permission.

Weed control would be expected to continue; therefore, the state would continue to implement weed control in the parcels and private leaseholders would continue to implement weed control on grazing leases. Therefore, noxious weeds are not anticipated to increase under the No Action Alternative.

4.1.1.3 Impacts to Wetland and Riparian Habitats – Lincoln and Sula Lands

Under the No Action Alternative, wetland and riparian habitats within the Sula Lands would remain under DNRC ownership while those on the Lincoln Lands would be returned to TNC ownership and eventually be sold with conservation easements to private entities. Wetlands, as like with forests and grasslands, are vulnerable to land development, stream crossings, and overgrazing by cattle/sheep. However, wetland and riparian habitats have some protection granted to them under the federal Clean Water Act.

Very little wetland and riparian habitat exists on the Sula Lands, while the Lincoln Lands have large areas of wetland and riparian habitats. Under the No Action Alternative, management of wetland and riparian habitats on the Lincoln Lands would depend upon the conservation easement and private landowner. Any potential impacts would need to be in compliance with the federal Clean Water Act and state regulations.

4.1.1.4 Impacts to Threatened Species – Lincoln and Sula Lands

No known occurrences of Montana's three threatened or proposed threatened plants occur in vicinity of the Lincoln and Sula Lands (MTNHP 2005a). Habitat for these three federally-listed plants is not present on Sula Lands. Because the Sula Lands lack habitat, there would be no direct or indirect negative effects to Spalding's campion, water howellia, and Ute-ladies' tresses as a result of the No-Action Alternative. Likewise the Lincoln Lands lack habitat for Spalding's campion and most likely contain unsuitable habitat for water howellia and Ute-ladies' tresses;

therefore, no direct or indirect negative effects to threatened and endangered plants would be expected under the No-Action Alternative.

4.1.1.5 *Impacts to State-listed Rare Plants – Lincoln and Sula Lands*

There are no known occurrences of rare plants on the Sula or Lincoln Lands. There may be potential habitat on the Sula Lands for Lemhi penstemon; however, no potential habitat has been officially identified. Based on the above information, no anticipated negative direct or indirect impacts to rare plants are expected to occur as a result of the No-Action Alternative.

4.1.2 Cumulative Effects – Lincoln and Sula Lands

No other projects within the cumulative effects area are expected to cause negative effects to vegetation resources, including threatened, endangered, or rare plants. There are no known occurrences of threatened, endangered, or rare plants on the Sula and Lincoln Lands. There may be potential habitat on the Sula Lands for Lemhi penstemon; however, no potential habitat has been officially identified. Based on the above information, no negative cumulative effects to vegetation resources would be expected from the No Action Alternative.

4.2 **Proposed Action Alternative**

4.2.1 Direct and Indirect Effects

4.2.1.1 *Lincoln Lands – General Effects*

Alternative B. Proposed Action Alternative – Under the Proposed Action, the State of Montana would exchange State lands located in Sections 15, 16, 21, and 22 of T2N, R19W in Ravalli County for private lands located in Sections 1, 2, 3, 9, and 12 of T14N, R9W in Lewis and Clark County.

Under the Action Alternative, a transfer of ownership for the Lincoln Lands would partially consolidate existing DNRC land parcels, as well as management, and increase the acreage of state land managed for timber harvest, recreation, grazing, and wildlife. A transfer to state ownership would link together parcels of state land that are currently isolated, simplifying the management of these lands.

DNRC management would take place on the acquired parcels, similar to other State Trust Lands. These activities could include timber sales, changes in grazing leases, road construction, stream restoration, Habitat Conservation Plan, and weed control.

Approximately 1.5 to 2.0 million board feet (MBA) of timber remain on the Lincoln Lands (DNRC 2005). In 20 to 30 years, the State Trust could receive revenues from approximately 1,393 acres of timber harvested using a commercial thinning prescription (DNRC, 2005).

Grazing leases are expected to be re-instated on all 1,458 acres of the Lincoln Lands (Liane 2005, Kloetzel 2005). DNRC grazing leases on the Lincoln Lands could generate up \$1 per acre

per year (\$1,458 per year to the School Trust). This is based upon the amount currently gained from grazing leases in the Lincoln vicinity (DNRC 2005). However, the range assessment has not been conducted, and the amount gained by the Trust may be less than \$1 per acre per year.

The Land & Water site visit indicated that forest regeneration appeared to be proceeding well, whereas range conditions seemed poor. Native grasses were widespread, but native forbs dominated the forest understory, exotic and noxious weeds dominated roadsides, and exotic and noxious weeds were commonly found in more open areas (especially in Parcel 3). The dominance in native, exotic, and noxious forbs indicates that either grasses in these areas have been overgrazed or that these habitats are naturally not conducive to growing grasses.

Under DNRC management, development and implementation of a long-term and comprehensive integrated weed management plan would more likely occur and be successful in controlling noxious weed populations. Common plant species and their habitats would more likely be protected under a single ownership, as the state would be best at comprehensively regulating grazing leases, recreation, timber activities, roads, weed control, and access, all of which effect the presence or absence of native plant species.

Currently, the DNRC is negotiating with the USFWS on a Habitat Conservation Plan. If this plan is implemented, then the Lincoln Lands could be included within the Habitat Conservation Plan. This could potentially and indirectly protect a variety of habitats from development; thereby, protecting a large variety of common plant species.

4.2.1.2 *Sula Lands – General Effects*

Alternative B. Proposed Action Alternative – Under the Proposed Action, the State of Montana would exchange State lands located in Sections 15, 16, 21, and 22 of T2N, R19W in Ravalli County for private lands located in Sections 1, 2, 3, 9, and 12 of T14N, R9W in Lewis and Clark County.

The Proposed Action does not require specific management of the Sula State Lands. However, according to Mark Sommer (2005), future management of the acquired parcels by J.R Miller is expected to include:

- No subdivisions or sale of the acquired parcels separately from the ranch.
- No public access to the Sula Lands, except for walk-through access within the Parcel 3 easement.
- No hunting by the public would be allowed.
- Continuation of existing grazing and timber harvest practices.
- Fences and gates would be moved to reflect the new land ownership boundary. The current boundary is 6 miles in length, whereas the new boundary would be 5 miles in length, reducing the overall amount of fence by one mile. Existing 7- and 8-strand barb-wire fences would be replaced with more wildlife-friendly 4- or 5-strand barb-wire fences.
- Potential construction of a few ranch-owned residences for ranch guests or management personnel.
- A voluntary donation of a conservation easement on the Sula Lands.

- A voluntary contribution of about \$25,000 towards a public access and/or wildlife enhancement project in Ravalli County.

No zoning or development restrictions would be placed on the Sula Lands as a result of the Proposed Action. However, an existing conservation easement on the SMR **limits the amount of development** that can happen on and adjacent to the ranch. Miller cannot grant any road easements through the ranch to adjoining property for the purposes of creating a subdivision on adjacent parcels. Therefore, existing and future owners of SMR are effectively barred from subdividing the Sula Lands, unless access for subdivision and development could be obtained through the Sula State Forest and the Bitterroot National Forest. Currently no vehicle access is available or contemplated through State or Federal lands surrounding the Sula Lands for subdivision or development.

Under the Action Alternative, the State would lose revenue from grazing leases on the Sula lands.

Noxious weed populations would be expected to either remain at current levels or decrease as the SMR implements a successful weed control plan on both their current property and on their leased portions of the Sula parcels.

4.2.1.3 *Impacts to Wetland and Riparian Habitats – Lincoln & Sula Lands*

Under the Action Alternative, wetland and riparian habitats within the Sula Lands would be transferred to private ownership (John R. Miller) while the Lincoln Lands would be transferred to DNRC ownership. Wetlands, as like with forests and grasslands, are vulnerable to land development, stream crossings, and overgrazing by cattle/sheep. However, wetland and riparian habitats have some protection granted to them under the federal Clean Water Act.

Very little wetland and riparian habitat exists on the Sula Lands while the Lincoln Lands have large areas of wetland and riparian habitats. Under the Action Alternative, a transfer in ownership of the Lincoln Lands would partially consolidate existing DNRC land parcels, as well as management, and could provide more stable protection to wetlands, riparian corridors, and water quality. Under the Action Alternative, any potential impacts to wetland and riparian habitats on the Lincoln Lands would need to comply with the federal Clean Water Act and state regulations.

4.2.1.4 *Impacts to Threatened Plants – Lincoln & Sula Lands*

No known occurrences of Montana's three threatened or proposed threatened plants occur in vicinity of the Lincoln and Sula Lands (MTNHP 2005a). Habitat for these three federally-listed plants is not present on Sula Lands. Because the Sula Lands lack habitat, there would be no direct or indirect negative effects to Spalding's campion, water howellia, and Ute-ladies' tresses as a result of the Proposed Action. Likewise, the Lincoln Lands lack habitat for Spalding's campion and most likely contain unsuitable habitat for water howellia and Ute-ladies' tresses; therefore, no direct or indirect negative effects to threatened and endangered plants would be expected under the Proposed Action.

4.2.1.5 Impacts to State-listed Rare Plants – Lincoln & Sula Lands

There are no known occurrences of rare plants on the Sula or Lincoln Lands. There may be potential habitat on the Sula Lands for Lemhi penstemon; however, no potential habitat has been officially identified. Based on the above information, no anticipated negative direct or indirect impacts to rare plants are expected to occur as a result of the Proposed Action.

4.2.2 Cumulative Effects – Lincoln and Sula Lands

No other projects within the cumulative effects area are expected to cause negative effects to vegetation resources, including threatened, endangered, or rare plants. There are no known occurrences of threatened, endangered, or rare plants on the Sula and Lincoln Lands. There may be potential habitat on the Sula Lands for Lemhi penstemon; however, no potential habitat has been officially identified. Based on the above information, no negative cumulative effects on TES plants and other vegetation resources would be expected from the Proposed Action Alternative.

5.0 SUMMARY

A comparison of the Action Alternative and No Action Alternative is presented in **Table 2**.

Vegetation resources, including range land and timber land, are expected to be managed for grazing and timber harvest under each Alternative. A limited number of homes may be constructed on the Lincoln Lands under the No Action Alternative, or on the Sula Lands under the Action Alternative, but these homes are not expected to create adverse effects to vegetation resources. No significant impacts to vegetation resources are expected as a result of either Alternative.

Noxious weeds are currently present in relatively low densities on the Sula Lands, whereas noxious weeds are in higher densities on several portions of the Lincoln Lands. Weed management practices are expected to continue on all parcels under both Alternatives. However, consistent noxious weed control would more likely occur on the Lincoln Lands under the Proposed Action than under the No Action Alternative. For the Sula Lands, weed control management would continue similar to historic trends (by the existing leaseholders) under both the Action and No Action Alternative.

Very little wetland and riparian habitat exists on the Sula Lands while the Lincoln Lands have large areas of wetland and riparian habitats. No impacts to wetlands are anticipated as a result of either Alternative.

There are no known occurrences of threatened, endangered, or sensitive (TES) plants within the Lincoln Lands. Although water howellia and Ute-ladies' tresses are associated with wetlands, occurrence of these plants on the Lincoln Lands is probably unlikely due to geography and/or habitat. Potential habitat for one sensitive plant (Lemhi penstemon) exists on the Sula Lands, but

this plant has not been found. Because no known TES plants exist on the Sula and Lands, it is determined that the Action and No Action Alternatives would not have an effect on TES plant species.

No other projects within the cumulative effects area are expected to cause negative effects to vegetation resources, including wetlands, and threatened, endangered, or rare plants. No negative cumulative effects to vegetation would be expected from the Action and No Action Alternatives.

Table 2. Comparison of Alternatives A and B, Vegetation Resources

Resource Parameters	Alternative A – No Action. (Sula Lands remain in State Ownership; Lincoln Lands to new private owners)	Alternative B – Proposed Action. (Sula Lands convert to private ownership; Lincoln Lands convert to State ownership)
Amount of State Trust Lands	<u>Lincoln Lands</u> : 0 acres Trust Lands. <u>Sula Lands</u> : 800 acres Trust Lands.	<u>Lincoln Lands</u> : 1,458 acres Trust Lands. <u>Sula Lands</u> : 0 acres Trust Lands.
Potential for commercial development or subdivision	<u>Lincoln Lands</u> : Limited development allowed by conservation easement. <u>Sula Lands</u> : None planned by DNRC.	<u>Lincoln Lands</u> : No developments or land sales planned by DNRC. <u>Sula Lands</u> : Access to Sula Lands limited by existing conservation easement on SMR.
Potential for limited residential development (under conservation easements)	<u>Lincoln Lands</u> : Limited development allowed by conservation easement. <u>Sula Lands</u> : None planned by DNRC..	<u>Lincoln Lands</u> : No developments or land sales planned by DNRC. <u>Sula Lands</u> : Potential for ranch-related guest cabins; number limited by existing conservation easement on SMR.
Grazing lands available	<u>Lincoln Lands</u> : 0 acres Trust Lands. <u>Sula Lands</u> : 800 acres Trust Lands.	<u>Lincoln Lands</u> : 1,458 acres Trust Lands. <u>Sula Lands</u> : 0 acres Trust Lands.
Grazing revenue to State Trust	<u>Lincoln Lands</u> : \$0 to Trust <u>Sula Lands</u> : \$805 per year to Trust.	<u>Lincoln Lands</u> : \$1,458 to Trust (est). <u>Sula Lands</u> : \$0 to Trust.
Timber lands generating revenue for State Trust	<u>Lincoln Lands</u> : 0 acres Trust Lands. <u>Sula Lands</u> : 500 acres Trust Lands.	<u>Lincoln Lands</u> : 1,393 acres Trust Lands. <u>Sula Lands</u> : 0 acres Trust Lands.
Time before timber revenues available to State Trust	<u>Lincoln Lands</u> : Not available to Trust. <u>Sula Lands</u> : 40-60 years.	<u>Lincoln Lands</u> : 20-30 years. <u>Sula Lands</u> : Not available to Trust.
Weeds	<u>Lincoln Lands</u> : High density of weeds in current condition. Management possibly fragmented into separate private owners. <u>Sula Lands</u> : Low density of weeds. Continued management of weeds by DNRC and grazing leaseholders.	<u>Lincoln Lands</u> : Higher density of weeds in current condition. Management consolidated under DNRC Lincoln State Forest. <u>Sula Lands</u> : Low density of weeds. Continued management of weeds by SMR expected (existing grazing lease holder).

6.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

Andrea Pipp
Land & Water Consulting, A Division of PBSJ

7.0 REFERENCES

Blackfoot Challenge. 2005. Information obtained from the website:

http://www.blackfootchallenge.org/am/publish/article_190.php

Henderson, B. 2005. Wildlife Biologist, Montana Fish, Wildlife, and Parks, Missoula, Montana. Phone conversations on May 2nd and 20th.

Kloetzel, S. 2005. Blackfoot Land Steward, The Nature Conservancy of Montana, Ovando, Montana. Phone conversations and e-mail correspondence on May 2nd, 6th, 9th, 10th, 12th, and 19th and June 20th.

McGrath, M. 2005. Wildlife Biologist, DNRC, Missoula, Montana. Phone conversations and e-mail correspondence on April 15th, May 6th, May 10th, and May 11th.

Meyer, J. 2005. Ranch Manager, Shining Mountain Ranch, Sula, Montana. Phone conversations on May 2nd and 6th.

Montana Department of Natural Resources and Conservation (DNRC). 1996. GIS Shapefiles from the DNRC Roads Database. Mike McGrath, DNRC, Missoula. May 2005.

Montana Department of Natural Resources and Conservation (DNRC). 2003. *DNRC Endangered, Threatened, and Sensitive Species*. Revised April 30th.

Montana Department of Natural Resources and Conservation (DNRC). 2005. Land Board Agenda Item: DNRC/Miller Land Exchange. Dated April 18, 2005.

Montana Fishery Information System (MFISH). 2005. Fish species present in Cameron Creek. Database queried on June 8th.

Montana Natural Heritage Program (MTNHP). 2005a. Montana Species of Concern in Vicinity of the Lincoln and Sula land parcels. Dated April 20, 2005. Helena, Montana.

Montana Natural Heritage Program (MTNHP). 2005b. Plant Species of Concern - Habitat and Identification. Accessed from <http://nhp.nris.state.mt.us/plants>. Helena, Montana.

- Nesser, J.A., Ford, G.L., Maynard, C.L., and D.S. Page-Dumroese. 1997. Ecological units of the Northern Region: subsections. General Technical Report INT-GTR-369. USDA Forest Service. Ogden, UT. 88 pp.
- Payne, G. 1973. Vegetative rangeland types in Montana. Montana Agricultural Experiment Station, Montana State University. Bozeman, Montana.
- Pierce, R. 2005. Fishery Biologist, Montana Fish, Wildlife, and Parks, Missoula, Montana. Phone conversation on May 11th.
- Shanley, P. 2004. District Biologist, USFS, Lincoln Ranger District, Lincoln, Montana. Phone conversation on November 3rd and electronic mail correspondence on November 4th and December 14th.
- Sommer, M. 2005. American Public Lands Exchange, representative of Miller Ranches. E-mail correspondence to S. Lauer, Land & Water Consulting, on June 20th.
- Storer, R. 2005. Forest & Lands Program Manager, DNRC, Missoula, Montana. Phone conversation and e-mail correspondences on May 2nd, May 20th, and June 2nd.
- Tetra Tech EM Inc. 2003. Final Phase I Environmental Site Assessment Report: Blackfoot River proposed acquisition for Plum Creek timberlands in Lewis & Clark, Missoula, and Powell Counties, Montana. December 18th. Produced for The Nature Conservancy, Helena, Montana.
- The Nature Conservancy (TNC). 2004a. North Lincoln Land Management Evaluation. Revised December. Helena, Montana.
- The Nature Conservancy (TNC). 2004b. Miller-DNRC Trade: Weed Information map for the Lincoln Lands. Helena, Montana.
- U.S. Fish and Wildlife Service. 1984. USGS Lincoln, Montana and Stoneall Mountain, Montana Quadrangle Maps with identified and classified sites of wetlands and deepwater habitats as prepared by the National Wetlands Inventory.
- Vore, J. 2005. Wildlife Biologist, Montana Fish, Wildlife, and Parks, Hamilton, Montana. Phone conversation and field meeting on May 4th and May 5th.